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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,548	08/30/2001	Xingxi Zhou	0425-0851P	7901

2292 7590 03/06/2008  
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FALLS CHURCH, VA 22040-0747

EXAMINER
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MCDONOUGH, JAMES E

ART UNIT	PAPER NUMBER
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1793

NOTIFICATION DATE	DELIVERY MODE
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03/06/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 09/914,548	<b>Applicant(s)</b> ZHOU ET AL.	
	<b>Examiner</b> JAMES E. MCDONOUGH	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 23, 24, 29, 30, 34, 39, 67, 68, 73 and 75 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23, 24, 29, 30, 34, 39, 67, 68, 73, and 75 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |



## **DETAILED ACTION**

### **Original Rejection**

Claims 23, 24, 29, 30, 34, 39, 40, 73, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al(5,608,183) in view of Timmerman (3,902,934).

Barnes et al discloses a gas generating composition that comprises 58.9 % of basic copper nitrate, 41.1 % of guanidine nitrate, and 5.3 % guar gum as a binder. The composition is extruded into long strands with a single perforation and then chopped. See Example 2. The weight loss ratio, concentration of trace gases or maximum internal pressure are inherent properties of this composition. As to limitations which are considered to be inherent in a reference, note the case law of In re Ludke, 169 USPQ 563; In re Swinehart, 169 USPQ 226, In re Fitzgerald, 205 USPQ 594; In re Best et al, 195 USPQ 430; and In re Brown, 173 USPQ 685,688. The oxidizer size is not disclosed.

Timmerman teaches that it is known to decrease particle size of oxidizer to lower than 25 micron in order to allow for complete reaction of the oxidizer (col. 2, lines 35-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the size of the oxidizer since Timmerman suggests that sizes lower than 25 micron will allow for complete reaction of the oxidizer and to prevent unreacted particles from being ejected with the gaseous reaction products. It is well-settled that optimizing a result effective variable is well within the expected ability of a

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person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

Claims 23, 24, 29, 30, 34, 39, 40, 73, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mendenhall (5,841,065) in view of Timmerman (3,902,934).

Mendenhall discloses a gas generating composition that comprises 40.3 % of basic copper nitrate, 15.7 % of guanidine nitrate, and 5.7 % guar gum as a binder. See Example. The weight loss ratio, concentration of trace gases or maximum internal pressure are inherent properties of this composition. As to limitations which are considered to be inherent in a reference, note the case law of In re Ludke, 169 USPQ 563; In re Swinehart, 169 USPQ 226, In re Fitzgerald, 205 USPQ 594; In re Best et al, 195 USPQ 430; and In re Brown, 173 USPQ 685, 688.

Timmerman teaches that it is known to decrease particle size of oxidizer to lower than 25 micron in order to allow for complete reaction of the oxidizer (col. 2, lines 35-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the size of the oxidizer since Timmerman suggests that sizes lower than 25 micron will allow for complete reaction of the oxidizer and to prevent unreacted particles from being ejected with the gaseous reaction products. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

Claims 67, 68, and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al (5,608,183) in view of Timmerman (3,902,934) as applied to claims above 23, 24, 29, 30, 34, 39, 40, 73, and 75, and further in view of Matsuda et al (5,780,767) or Zhou (6,468,369) or Seeger (5,834,679).

Matsuda, Zhou, and Seeger teach the use of a sodium salt of carboxymethylcellulose for use as a binder with explosive compositions. It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute sodium carboxymethylcellulose for the guar gum disclosed by Barnes et al since they are both known water soluble binders and would have the same result on the gas generating composition and since Matsuda, Zhou, and Seeger all teach that sodium carboxymethylcellulose is a known binder for gas generating compositions.

Claims 67, 68, and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mendenhall (5,841,065) in view of Timmerman (3,902,934) as applied to claims above 23, 24, 29, 30, 34, 39, 40, 73, and 75, and further in view of Matsuda et al (5,780,767) or Zhou (6,468,369) or Seeger (5,834,679)..

Matsuda, Zhou, and Seeger teach the use of a sodium salt of carboxymethylcellulose for use as a binder with explosive compositions. It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute sodium carboxymethylcellulose for the guar gum disclosed by Mendenhall since they are both known water soluble binders and would have the same result on the

gas generating composition and since Matsuda, Zhou, and Seeger all teach that sodium carboxymethylcellulose is a known binder for gas generating compositions.

### **Response to Arguments**

Applicants argue that claims 76 and 77 were improperly withdrawn. This is not persuasive as the original claims were drawn to a composition claim 73 was examined because it was dependent on elected claims. Even so they add nothing patentable to the claims as claim 76 is product-by-process and the shape of the form pellets is described in the references.

Applicants argue against the rejection over Barnes in view of Timmerman.

Applicants argue that the reference are mutually incompatible technologies because Barnes teaches BCN as the oxidant and Timmerman teach citric acid as the fuel and they will deleteriously react. This is not persuasive because BCN is no the only oxidant taught by Barnes and Timmerman is not used to teach the fuel. Furthermore it is well understood in the art that compounds with acidic protons can react with BCN deleteriously or beneficially depending on the exact composition.

What examiner meant to suggest about the motivation is that the references do not need to use the same reasons as the instant invention for a combination of references to be proper and read on a claimed limitation or that the reason the instant

invention add a component or limitation does not have to be the same reason to suggest a combination of components from two or more references.

Applicants argue that using a smaller size of one oxidant does not correspond to using smaller size particles of another different oxidant. This is not persuasive because generally decreasing the particle size of an oxidizer in one composition has roughly the same effect as decreasing the particle size of a different oxidizer in a different composition, as it is well understood that in reactions with solid components that as the size of the particle is decreased the reaction rates including decomposition and autoignition temperatures tend to increase and vice versa and one skilled would be expected to be able to optimize this parameter as having too small of a particle size the reaction rate may be too fast and even possibly decompose or autoignite where a similar composition with larger particles would not suffer this, on the other hand if the particle become too large then the reaction rates can be slowed to a point where the composition have a difficult time igniting or burn too slow to be effective.

Applicants argue that one skilled in the art would not recognize the size of particle of oxidant to be result effective. This is not persuasive for reasons given above.

Applicants argue that any teaching or suggestion must come from within the art. Applicants are reminded that it can also come from knowledge available to one skilled in the art of which reaction rates and particle size are well known and understood.

Applicants argue against the rejection over Mendenhall in view of Timmerman.



These arguments have been fully considered but are not persuasive for the same reasons given for the arguments against the rejection over Barnes in view of Timmerman.

Applicants argue against the rejection of claims 67, 68, and 73

Applicants argue that Matsuda teaches an azide compound or an organic compound, but that the primary reference teach that the composition should be non-toxic. This is not persuasive as Matsuda also teaches the use of organic compounds which are not toxic like azides just because Matsuda is not concerned about the toxicity of the compounds used does not preclude it from being available as a secondary reference.

Applicants argue that since dicyanamide is reactive with BCN it can not be used. This is not persuasive as there are many reference that teach the use of BCN with fuels that it will react with.

Applicants remaining arguments against combining have been fully considered but are not persuasive because they only point out difference between the references to try to show that they are incompatible but these are not reasons that one skilled in the art would not look to them for guidance.

Applicants continue to argue the incompatibility of the reference but the reference are not considered to be incompatible, while it is understood that not all of the fuels from every reference can be combined with any oxidizer from any reference this does not make them incompatible and the combination did not look to try to combine all fuels with

all oxidants, and further still those skilled in the art have good understanding of what fuels and oxidizer can and can not be mixed but a complete discussion of this is beyond the scope of this rejection.

Applicants argue that in an interview with the previous examiner, the previous examiner stated that the declaration rebutted the prima facie case. This is not persuasive as the current examiner see no mention of this in the interview summary.

Applicants argue that their declaration submitted 4/24/2007 show unexpected results. This is not persuasive for at least the following: 1.) Examiner can find no declaration submitted 4/24/2007. 2.) There is a declaration from 6/29/2007 however, this declaration is not persuasive because (a) it is not fully commensurate with the scope of the invention (b) examiner notes that the two composition with the higher burn rate used water in their preparation and all of the compositions have BCN and guanidine nitrate however guanidine nitrate has acidic protons that can react with BCN so applicants arguments that references are incompatible because the will components react is now more unpersuasive as to get the higher burn rate in the instant invention the components must react so this proves that reacting fuels and oxidizers are not necessarily mutually incompatible as asserted by applicants. 3.) The declaration only compares the composition of one reference to the instant invention and not all of the closest prior art.

### **Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES E. MCDONOUGH whose telephone number is (571)272-6398. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JEM 2/22/08

**/Jerry A Lorengo/**

**Supervisory Patent Examiner, Art Unit 1793**

<div>Application Number</div> <div></div>	Application/Control No.	Applicant(s)/Patent under Reexamination	
	09/914,548	ZHOU ET AL.	
	Examiner	Art Unit	
	JAMES E. MCDONOUGH	1793	